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Neutron Scattering Experiment on $\text{U}_3\text{Pd}_{20}\text{Si}_6$ II: Crystalline Electric Field and Spin Wave Excitations

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We report the result of the inelastic neutron elastic scattering experiments on $\text{U}_3\text{Pd}_{20}\text{Si}_6$ [‡]. We found the crystalline electric field excitations around 23 meV, indicating a localized character of the $5f$ electrons of $\text{U}_3\text{Pd}_{20}\text{Si}_6$. It is quite rare in the uranium metallic compounds. We also observed a sharp peak at $dE=2.8\text{meV}$ in the magnetic excitation spectra of 7 K below the antiferromagnetic transition temperature 19 K, which may be attribute to the antiferromagnetic spin wave excitations.

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